Combining volunteers and primary care teamwork to support health goals and needs of older adults: a pragmatic randomized controlled trial

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ABSTRACT

BACKGROUND: The Health TAPESTRY (Health Teams Advancing Patient Experience: STRengthening QualitY) intervention was designed to improve primary care teamwork and promote optimal aging. We evaluated the effectiveness of Health TAPESTRY in attaining goals of older adults (e.g., physical activity, productivity, social connection, medical status) and other outcomes.

METHODS: We conducted a pragmatic randomized controlled trial between January and October 2015 in a primary care practice in Hamilton, Ontario. Older adults were randomized (1:1) to Health TAPESTRY (n = 158) or control (n = 154). Trained community volunteers gathered information on people's goals, needs and risks in their homes, using electronic forms. Interprofessional primary care teams reviewed summaries and addressed issues. Participants reported goal attainment (primary outcome), self-efficacy, quality of life, optimal aging, social support, empowerment, physical activity, falls, and access to and comprehensiveness of the health system. We determined use of health care resources through chart audit.

RESULTS: There were no differences between groups in goal attainment or many other patient-reported outcome and experience assessments at 6 months. More primary care visits took place in the intervention versus control group over 6 months (mean ± standard deviation [SD] 4.93 ± 3.86 v. 3.50 ± 3.53; difference of 1.52 [95% confidence interval (CI) 0.84 to 2.19]). The odds of having 1 or more hospital admission were lower for the intervention group (odds ratio [OR] 0.44 [95% CI 0.20 to 0.95]).

INTERPRETATION: Health TAPESTRY did not improve the primary outcome of goal attainment but showed signals of shifting care from reactive to active preventive care. Further evaluation will help in understanding effective components, costs and consequences of the intervention. **Trial registration:** ClinicalTrials.gov, no. NCT02283723

Countries with well-functioning primary care systems have realized better health outcomes and health equity.[1,2] Health care systems worldwide are rearranging primary care to be proactive versus reactive, to focus on prevention rather than disease, to better connect to health and social care, to attend to multimorbidity, and to emphasize individualized whole-person, team-based and flexible care adjusted community needs.[3–5] Canada is among the countries remodelling primary health care,[6] including adoption of interprofessional health care teams.[7–9]

The Health TAPESTRY (Health Teams Advancing Patient Experience: STRengthening QualitY) intervention was designed to improve person-centred and team-based primary care. It combines new health care elements with strengths of the current system. The program promotes principles of optimal aging through components that aimed to improve system navigation, include use of trained volunteers, enhance interprofessional primary care teams, and use new in-home technologies and community engagement to plan care based on participants' goals, risks and needs.

Each component is supported by evidence of effectiveness.[8,10–20] However, we are unaware of any initiative that evaluates the integration of program components. As support from health care volunteers is therapeutic to patients,[21] Health TAPESTRY broadened the concept of the health care team to include volunteers who link to primary care in ways comparable to community or lay health worker activities.[22,23] This study applies the Health TAPESTRY intervention to older adults, a growing proportion of the population[24] who are the highest consumers of health care spending[25] and thus an increasing focus of activity within primary care.

The primary research question was "What is the effectiveness of the Health TAPESTRY intervention on the identification and attainment of a person's health goals in older adult participants compared with people not receiving the Health TAPESTRY intervention after 6 months?" Our hypothesis was that Health TAPESTRY would allow people to attain their health goals more effectively. Secondary research questions addressed patient-reported outcomes and experiences and use of health service resources.

Methods

Design and setting

We conducted an unblinded, pragmatic randomized controlled trial (RCT) that included a delayed intervention to encourage recruitment by providing opportunity for all participants to receive the intervention eventually (Figure 1). The trial protocol was published.[26] We conducted the study at the 2-site McMaster Family Health Team, a multidisciplinary academic primary care team in Hamilton, Ontario, serving about 37 000 patients.

Participants

Patients were rostered with the McMaster Family Health Team, aged 70 years or older, and living in Hamilton. We excluded patients if they were away for more than 50% of trial duration, in long-term care, palliative, or neither they nor a family member spoke English. We did not target any specific diseases or levels of health. We identified potential patients using electronic medical records, then family physicians screened these patients for exclusions. We sent invitation letters to eligible patients. Recruitment occurred between Jan. 23 and Oct. 30, 2015.

Randomization and concealment

A statistician external to data collection managed an automated, central (allocation concealed) computerized randomization sequence (Appendix 1, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.181173/-/DC1). The patient was the unit of randomization. Randomization was stratified by gender and clinical site and blocked. Couples were accepted as 1 unit, with both members randomized into the same group but only 1 of the pair was randomly selected for the main analysis. Dropouts were not replaced.

We did not tell patients, caregivers and volunteers whether patients were in the initial or delayed intervention group. Health care team members knew a patient was receiving the intervention once a Health TAPESTRY report was reviewed but were masked (not blinded) to allocation. Research staff had access to files identifying patient randomization status.

Intervention and control groups

We designed the multicomponent and multistage intervention with the participation of patients, volunteers, health care providers and community representatives.[27] Details of the intervention are provided elsewhere.[26] Each patient received a home visit from a pair of trained community volunteers who collected information using an electronic data collection software tool (TAP-App) on a tablet computer. They collected information on life and health goals, risks and needs, daily life activities and general health, using structured surveys and unstructured narratives. Structured surveys were chosen if they were valid, reliable, feasible and free of cost.[28] The volunteers sent, securely and electronically, a report summarizing patients' goals, alerts, key issues and observations to the primary care electronic medical record, to the attention of an intake and case conferencing interprofessional "huddle" team at the clinics. These interprofessional teams reviewed the reports and then generated, prioritized and acted upon plans of care for how the team (including non-huddle-team members), community agencies and volunteers could address clients' goals and health issues, with iterative follow-up. Interprofessional teams included combinations of health care professionals. Each team defined their workflow processes. Team members did not overlap between study sites.

We recruited volunteers using email and printed brochures distributed to community organizations and university groups, newspaper advertisements, a volunteer opportunity website and word of mouth.[29] Volunteer training consisted of 11 online modules, an initial 2-hour face-to-face session and 9 additional sessions during the intervention.[29] The intervention period was 6 months.

The control group received usual care and did not have volunteer visits. There was no restriction on receiving care from the same team members as the intervention group; however, control patients were not discussed at huddle groups.

We followed patients in both groups throughout implementation and at 6 months. Clinical follow-up was determined according to patients' needs. We gathered baseline data using self-report surveys, electronic medical records and TAP-App. We collected intervention participant surveys used in health care team reports using the TAP-App. We programmed outcome surveys into REDCap (version 6.9.7). We used a pilot-tested form for the abstraction of electronic medical records data; this was done independently, in duplicate, until there was agreement between trained research assistants (i.e., κ statistic of ≥ 0.70).

Outcomes

The primary outcome was goal attainment as determined by goal attainment scaling at 6 months. Goal attainment scaling is based on attainment of individual health goals, using the mean difference of scores between groups from baseline.[30,31] Patients identified their health goals, indicators and outcomes through piloted, structured, prompted discussion with trained volunteers in the intervention group or similarly trained research staff in the control group. The development of the goal-setting processes used has been published.[32]

Secondary outcomes evaluated were self-efficacy;[33] quality of life;[34] perception of optimal aging (4-point scale);[35] social support;[36]

caregiver strain;[37] satisfaction with health care (10-point scale); access;[38] comprehensiveness;[38] patient empowerment;[38] patient-centredness;[38] physical activity;[39,40] falls; and primary care, hospital and emergency department visits for any reason. To gain further insight into hospital admissions, and recognizing that categories overlap, unblinded research staff categorized hospital admissions into (a) ambulatory care–sensitive conditions for chronic disease[41] and (b) adverse effects. All outcomes were listed elsewhere,[26] except that post hoc we also examined the proportion of participants' self-reporting maintenance or improvement in their top priority goal, and medication use, as huddle groups reported particular attention to medication reduction. Subgroup analyses were conducted on all outcomes.

We gathered information on critical incidents, including possible adverse events, through passive surveillance from trial personnel using a structured form. A family physician directed follow-up. We did not create definitions for anticipated or unexpected adverse events a priori.

Sample size

To find a mean difference of 5 points on goal attainment scaling score signifying improvement in level of goals attained in intervention versus control, and assuming a baseline goal attainment scaling score of 30, standard deviation (SD) of 15, power of 80% and type I error probability of 0.05, we had to enrol 286 patients. This difference was shown to be an achievable and meaningful change when we triangulated data from studies using goal attainment scaling in older adults.[42–44] Planned subgroup analyses were exploratory. We aimed to enrol 316 participants to account for 10% loss to follow-up.

Statistical analysis

Baseline characteristics are reported by group as mean (± SD) for continuous variables and count (percent) for categorical variables. The primary between-group comparisons occurred at 6 months and was intention-to-treat for all outcomes. We performed a per-protocol sensitivity analysis for the primary outcome.

We used multiple imputation for missing data to enable intention-to-treat analyses.[45] We analyzed data using multiple linear regressions for continuous variables and logistic regressions for categorical variables, adjusting for baseline scores or events. For continuous outcomes with skewed distributions, data were transformed and analyzed using analysis of covariance. Baseline-adjusted odds ratios (ORs) with corresponding 95% confidence intervals (CIs) from logistic regression were reported for dichotomous outcomes. Baseline-adjusted incidence rate ratios with corresponding 95% CIs were reported for count variables. The criterion for statistical significance was set a priori at $\alpha = 0.05$. Subgroup analyses examined differences between men and women; age younger than 80, and 80 years and older; individuals residing alone or with others; or those with fewer than 3, or 3 or more chronic conditions. We used SAS version 9.4.

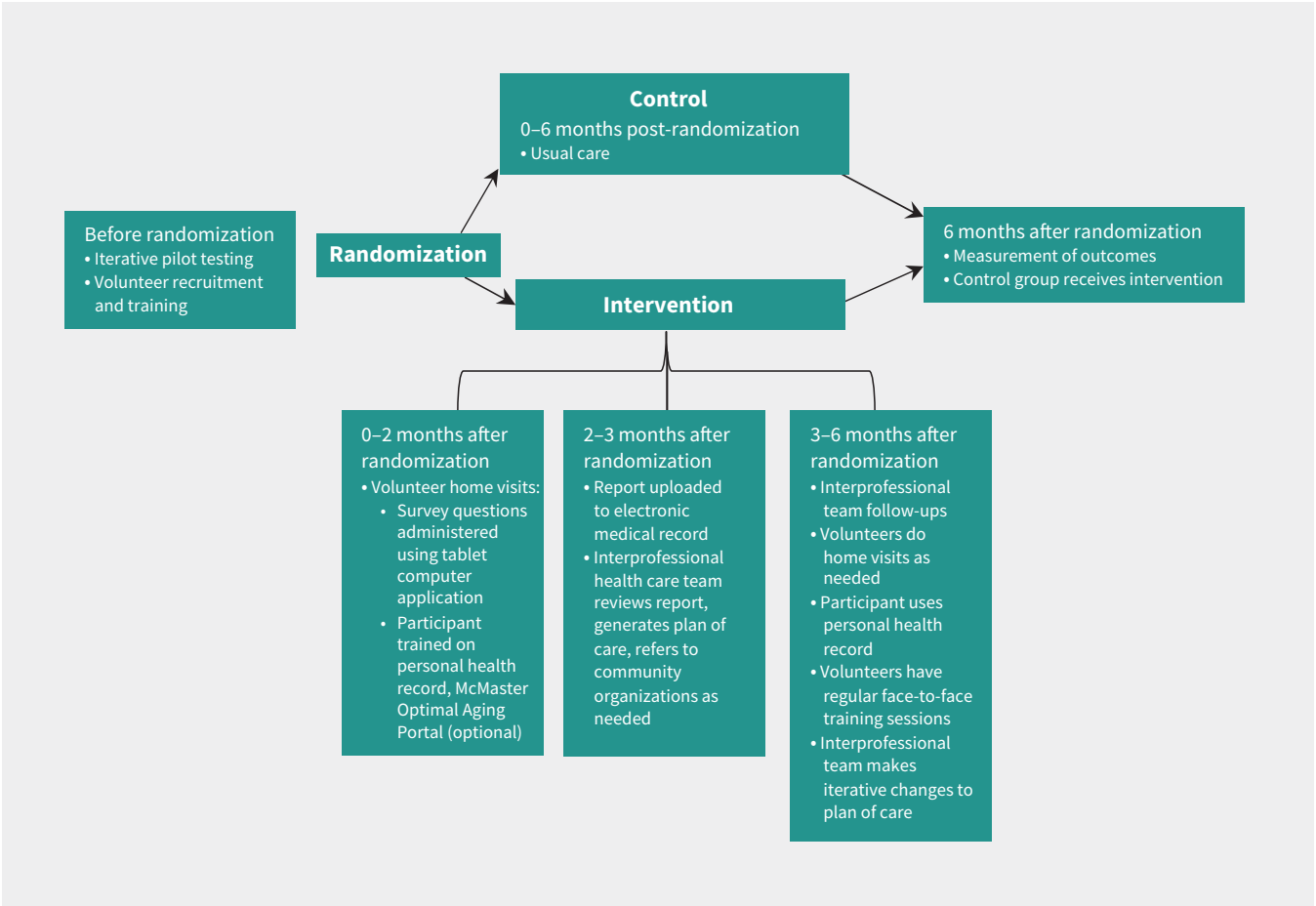

Figure 1: Study design and description of Health TAPESTRY intervention.

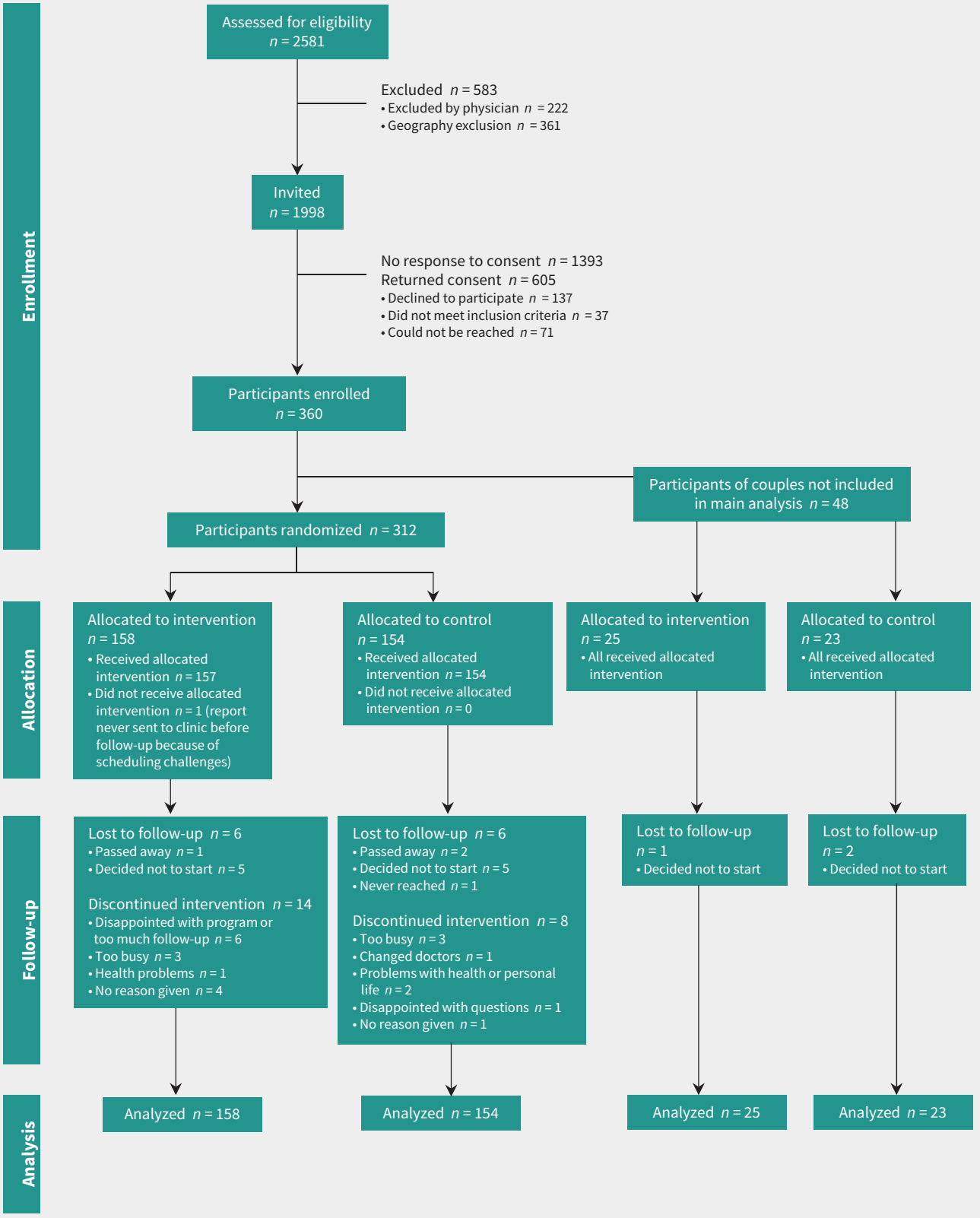

Figure 2: CONSORT 2010 flow diagram.

Ethics approval

This study was approved by the Hamilton Integrated Research Ethics Board.

Results

Physician screening reduced potential participants from 2581 to 1998. Consent was received from 605 respondents (30% response rate). Of these, 360 people were enrolled, representing 312 units randomized (264 individuals and 1 member from 48 couples, resulting in 158 intervention and 154 control participants) (Figure 2).

Groups were well balanced on most characteristics (Table 1), except that the intervention group had a slightly lower age, higher level of education, and slightly fewer comorbidities.

There was no statistically significant between-group difference in goal attainment scaling score (57.79 intervention v. 58.94 control group, respectively; adjusted mean difference −1.50 [95% CI −6.51 to 3.50]). A goal attainment scaling score > 50 showed that both groups had made progress toward attaining goals compared with baseline. The number of goals in the intervention group was 414 (n = 158; mean 2.62) and the number of goals in the control group was 378 (n = 154; mean 2.45). The most common highest-priority goal areas identified were related to physical activity, productivity, social connection and maintaining health (Table 2). A per-protocol sensitivity analysis (57.62 intervention v. 58.94 control, p = 0.6) did not change results.

There were no statistically significant between-group differences in participant ratings of self-efficacy, quality of life, optimal aging, social support, patient empowerment, or perceived access to, or comprehensiveness of, the health care system (Table 3).

There was a statistically significant between-group difference in self-reported time walking per week; an increase of 81 minutes in the intervention versus decrease of 120 minutes in the control groups (p = 0.004). There were no statistically significant between-group differences in other aspects of physical activity, although higher levels were reported by the intervention group for all physical activity categories. Suboptimal physical activity scores (i.e., ≤ 600 metabolic equivalent of task min/wk) were reported in 24.3% of the intervention group and 32.8% of the control group at 6 months. While fewer people in the intervention group

Table 1: Participant characteristics

Variable	Intervention, *n* (%)* *n* = 158	Control, *n* (%)* *n* = 154
Female†	101 (63.9)	93 (60.4)
Age, yr, mean ± SD†	78.06 ± 6.3	79.06 ± 6.6
Age > 80†	54 (34.2)	64 (41.6)
Highest level of education†	*n* = 153	*n* = 145
High school	60 (38.0)	70 (45.5)
Post-secondary and higher	93 (58.9)	75 (48.7)
Country of birth: Canada†	83 (59.3) *n* = 140	84 (60.9) *n* = 138
European or white ethnicity†	111 (88.8) *n* = 125	109 (86.5) *n* = 126
Main language: English†	131 (94.2) *n* = 139	126 (91.3) *n* = 138
Marital status†	*n* = 137	*n* = 134
Married or common law	70 (51.1)	66 (49.3)
Widowed, divorced, separated, single or never married	67 (48.9)	68 (50.8)
Chronic conditions or diseases‡		
Hypertension	81 (66.9) *n* = 121	88 (66.7) *n* = 132
Osteoarthritis	43 (35.3) *n* = 122	61 (46.2) *n* = 132
Diabetes	37 (30.3) *n* = 122	34 (25.8) *n* = 132
Heart disease§	41 (33.6) *n* = 122	57 (43.2) *n* = 132
Cancer	26 (21.9) *n* = 119	40 (30.3) *n* = 132
Chronic obstructive pulmonary disease or lung disease	14 (11.9) *n* = 118	18 (13.6) *n* = 132
Stroke or cerebrovascular disease	8 (6.6) *n* = 122	8 (6.1) *n* = 131
Extent of comorbidity‡¶	*n* = 122	*n* = 132
1–2 comorbidities	86 (70.5)	85 (64.4)
≥ 3 comorbidities	36 (29.5)	47 (35.6)
Years with clinic‡	*n* = 158	*n* = 153
< 5	28 (17.7)	23 (17.0)
≥ 5	130 (82.3)	127 (83.0)
No. of prescription medications, mean ± SD‡	5.39 ± 4.2 *n* = 156	5.64 ± 3.8 *n* = 150

Note: *n* = number used in the analysis, SD = standard deviation.
*Unless stated otherwise.
†Self-report data source.
‡Chart audit data source.
§Conditions such as arteriosclerosis, angina pectoris and heart failure.
¶Based on list of conditions above.

Table 2: Description of the types of goals identified by participants

Goal area	General goal examples*	Intervention group, *n* (%)† *n* = 158	Total sample, *n* (%)† *n* = 312
Physical activity	Exercising more, walking more, starting a new activity, maintaining current physical fitness levels, getting out and getting more active	78 (18.84)	142 (17.93)
Productivity	Getting work done, pursuing hobbies, being mentally active and productive	70 (16.91)	130 (13.41)
Social connection	Spending time with family and friends, going out and doing social activities, maintain current relationships	60 (14.49)	113 (14.2)
Medical	Managing medical problems, seeing the doctor (such as to see specialist about tremor in hand)	51 (12.32)	98 (12.37)
Maintainance of health	Staying healthy, staying at home, remaining independent	48 (11.59)	111 (14.02)
Diet and nutrition	Losing weight, eating healthier, eating fewer unhealthy foods, managing weight using diet	36 (8.70)	47 (5.93)
Other	Making time for faith, travel, finances, caregiving	29 (7.00)	60 (7.58)
Rehabilitation	Managing pain, improving mobility and flexibility, seeing health professional such as physiotherapist	26 (6.28)	47 (5.93)
Mental health	Keeping mental faculties, memory, preventing degradation	13 (3.14)	20 (2.53)
Smoking and use of alcohol	Quitting smoking, decreasing alcohol intake	4 (< 1)	4 (< 1)
Total goals set		414	792

*Through further discussion, each general goal was expressed more specifically by a participant as specific actions over a specific time frame to achieve the goal. The participant identified the goal as an ideal yet possible target for achieving the goal by considering the question: "In 6 months, what specifically would be the biggest change you would want to see?". The SMART goals format was used to create specific, measurable, attainable, relevant, and timely goals. Progress toward goal achievement was rated based on 5 expected outcome levels for each goal identified.
†Percentages relate to the percentage of total goals set.

(*n* = 10, 6.33%) had 1 or more falls, this difference was not statistically significantly different from the control group (*n* = 19, 12.34%; OR 0.47 [95% CI 0.21 to 1.05]).

The number of primary care visits increased in the intervention group; a mean ± SD of 4.93 ± 3.86 visits in the intervention group compared with 3.50 ± 3.53 visits in the control group; and a baseline-adjusted absolute difference of 1.52 (95% CI 0.84 to 2.19). Increased visits were not only with physicians, but also included visits to other interprofessional team members. For example, while 57.7% of intervention participants had follow-up with physicians, 35.6% and 30.9% of participants had follow-up with occupational therapists and dietitians, respectively (Appendix 2, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.181173/-/DC1).

There was a lower mean rate of hospital admission in the intervention group compared with the control group (mean ± SD of 0.09 ± 0.33 v. 0.23 ± 0.60; adjusted incidence rate ratios 0.37 [0.18 to 0.77]) and the odds of having 1 or more hospital admissions was lower for the intervention versus the control group (6.96% v. 14.94%; OR 0.44 [95% CI 0.20 to 0.95]). Fewer people had 1 or more emergency department visits in the intervention group (8.86% v. 13.64%), but the odds of having an emergency department visit were not statistically significantly different (0.58 [95% CI 0.28 to 1.20]). At 6 months, fewer medications were used in the intervention compared with the control group (mean ± SD of 4.77 ± 3.78 v. 5.39 ± 3.59; adjusted incidence rate ratio 0.86 [0.78 to 0.96]). Seven hospital admissions (none resulting from adverse effects) were related to ambulatory care–sensitive conditions for chronic disease (3 intervention, 4 control) (Appendix 3, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.181173/-/DC1).

Eleven critical incidents reported to the volunteer coordinator during home visits included mental health issues (*n* = 5) involving stress, suicidal ideation, extreme sadness, living conditions (bedbugs, cockroaches, hoarding) (*n* = 3), privacy concerns (*n* = 1), visible physical distress (*n* = 1), and loss of a driver's licence from follow-up of an abnormal clock drawing (*n* = 1). The latter was perceived as harm from the patient's perspective.

Subgroup analyses found that people aged 70–79 years reported greater improvements in comprehensiveness of health care received compared with those aged 80 and older. People married or common law who received the intervention were less likely to have had falls than those who were divorced, separated, widowed or single. People with 2 or fewer chronic conditions were more likely to attain health goals compared with those with 3 or more chronic conditions. No other subgroup comparisons generated statistically significant differences.

Our implementation evaluation conducted with those involved in the intervention (patients, volunteers, health care providers) showed that the most common clinically important alert generated was suboptimal physical activity (78.5% of

Table 3: Goal attainment and other patient-reported measures

Variable	Intervention, *n* (%)*		Control, *n* (%)*		Effect estimate (95% CI)
	Baseline *n* = 158	6 mo *n* = 140	Baseline *n* = 154	6 mo *n* = 138	
Goal attainment scale score, mean ± SD	NA	57.79 ± 19.86	NA	58.94 ± 19.70	−1.50 (−6.51 to 3.50)†
Self-efficacy for managing chronic disease score, mean ± SD	7.56 ± 1.73	7.91 ± 1.72	7.55 ± 1.61	7.75 ± 1.65	2.34 (−2.38 to 7.06)‡
Quality of life (score), mean ± SD	0.80 ± 0.13	0.82 ± 0.12	0.81 ± 0.13	0.81 ± 0.13	0.02 (−0.014 to 0.058)‡
Optimal aging					
Poor	13 (8.23)	12 (8.57)	12 (7.79)	14 (10.14)	0.78 (0.33 to 1.84)‡
Good	47 (29.75)	49 (35.00)	50 (32.47)	43 (31.16)	
Very good	60 (37.97)	53 (37.86)	57 (37.01)	59 (42.75)	
Excellent	31 (19.62)	26 (18.57)	27 (17.53)	21 (15.22)	
Patient empowerment, mean ± SD	3.01 ± 0.80	3.04 ± 0.88	3.02 ± 0.76	2.85 ± 0.94	0.172 (−0.02 to 0.36)
Social network score, mean ± SD	8.84 ± 1.52	8.75 ± 1.52	8.74 ± 1.61	8.69 ± 1.53	0.038 (−0.25 to 0.33)
Social satisfaction score, mean ± SD	18.89 ± 2.41	18.96 ± 2.87	19.19 ± 2.37	19.04 ± 2.76	0.102 (−0.35 to 0.55)
Access to health care resources					
No difficulty	128 (81.01)	117 (83.57)	121 (78.57)	118 (85.51)	1.173 (0.594 to 2.317)¶
Difficulty once	16 (10.13)	16 (11.43)	16 (10.39)	12 (8.70)	
Difficulty several times	9 (5.70)	6 (4.29)	9 (5.84)	7 (5.07)	
Comprehensiveness, mean ± SD	7.22 ± 2.86	7.41 ± 3.29	7.85 ± 2.89	7.14 ± 3.08	0.37 (−0.42 to 1.16)
Patient-centredness, mean ± SD	2.76 ± 0.77	2.72 ± 0.83	2.71 ± 0.75	2.60 ± 0.82	0.103 (−0.071 to 0.276)
Satisfaction with health care, mean ± SD	8.61 ± 1.71	8.44 ± 2.01	8.67 ± 1.38	8.55 ± 1.86	−0.11 (−0.54 to 0.31)
Physical activity (measured by the IPAQ)					
Total	2339 (3410)	2061 (3583)	2303 (3197)	1658 (1941)	0.464 (−0.025 to 0.953)
Vigorous	863 (2043)	739 (1703)	767 (2008)	611 (1278)	0.681 (−0.199 to 1.561)
Moderate	897 (1387)	650 (1688)	978 (1891)	603 (1078)	0.453 (−0.374 to 1.280)
Walking	592 (891)	673 (790)	576 (808)	455 (506)	1.130 (0.306 to 1.953)†
Moderate or vigorous	1754 (2906)	1389 (3109)	1731 (2959)	1210 (1784)	0.689 (−0.127 to 1.505)
Minutes sitting	360 (193)	319 (162)	337 (175)	342 (149)	−0.111 (−0.218 to −0.005)

Note: CI = confidence interval, IPAQ = International Physical Activity Questionnaire, NA = not applicable, SD = standard deviation.
*Unless stated otherwise.
†Used multiple imputation.
‡Transformation used (square).
§Indicates a violation of the normality assumption; no transformation was performed as the statistical test is robust to this violation.
¶Odds ratio and 95% CIs.
**Adjusted log-transformation reported, unless stated otherwise.
††Adjusted cube root transformation.

participants; Appendix 4, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.181173/-/DC1), which was notable because it was a common goal and intervention participants spent more time walking. Other key alerts included interest in information about advanced care planning (53.8%), nutritional risk (46.8%) and loss of bladder control (35.4%). Volunteers completed 265 home visits, including 151 initial visits.

Interpretation

The Health TAPESTRY intervention did not improve the primary outcome of goal attainment, but it did show signals of shifting care usage, by reducing hospital admissions and increasing primary care engagement. Despite inclusion of generally healthy older adults, most participants reported suboptimal physical

activity and other health risks (e.g., falls) or conditions (e.g., urinary incontinence) not previously identified, and most participants had multimorbidity. The intervention identified care gaps, enabling a range of primary care team members to intervene. We suggest that volunteer home visits explicitly forged connections between patients and the primary care team, eliciting previously unknown information, which activated the design of more tailored plans for care.

Our findings are somewhat consistent with a recent larger trial that also studied a multifaceted, patient-centred primary care approach in people with multimorbidity and found improvements in patient experience measures but no differences in other outcomes, such as quality of life, illness burden or treatment burden, after 15 months.[46] Although findings are mixed, Health TAPESTRY is aligned with accepted guidance for personal care planning,[47,48] providing patient-centred or goal-directed care for older adults who are managing multiple chronic conditions[49] and Starfield principles of primary care,[50–52] and, for people with chronic diseases, care-coordination strategies that improve health and outcomes.[53] The intervention is well aligned with redesigns of the health care system underway in Canada and elsewhere[21,54–57] and incorporates key elements recommended by the World Health Organization for integrated health care for older people.[24]

Volunteers showed great enthusiasm for and a sense of purpose regarding their role. Community volunteers support the health of communities worldwide[15,21,58–60] and may benefit themselves from being volunteers.[61,62] Health TAPESTRY leverages the enormous resource of community volunteers, integrating their work into the formal health care system.

Our study has several strengths. Its pragmatic nature optimizes applicability to real-world practice. Potential participants responded well to invitation letters (patients) and advertisements (volunteers). Volunteer training was feasible. Transmission of information on critical incidents identified by volunteers allowed for early intervention in cases such as elder abuse and mental health. The study evaluated implementation and sustainability[63] from multiple perspectives. Program implementation costs would need to be substantial to offset costs from the reduction in hospital admissions we found.

Limitations

This study has several notable limitations. The lack of differences found in measures of patient-reported experiences and patient-reported outcomes, including our primary outcome, were likely influenced by higher-than-expected baseline scores, improvements in both groups, variable strength across goal areas, and a short intervention period. Few structured tools are available to assist with goal-directed primary care.[64] The goal attainment scaling process applies well in multimorbidity, as it is individualized to patients' priority areas. Despite participants choosing their own goals, almost half identified physical activity as a priority goal. However, despite pilot testing of the intervention, it was a challenge for volunteers to discuss goals with patients, given the time needed and the complexity of having such conversations.[32] A longer intervention period may have allowed for more iterative goal-directed care to occur between individuals and their health care team, thus allowing for more effective care to be delivered to the intervention group participants. Furthermore, the control group identifying goals at baseline may have been too strong an intervention itself.

Our study took place within an academic interprofessional team setting, which may limit generalizability to other settings. However, many countries are adopting similar interdisciplinary primary care team approaches. Study participants were generally healthy; implementation and outcomes may be different in those more vulnerable. Of persons approached to participate, 82% declined to do so, which may have contributed to a healthier study sample. Finally, the reduction in medication use was discovered in exploratory analyses and needs further confirmation.

Conclusion

Health TAPESTRY did not improve goal attainment and many patient-reported outcomes or experiences, but did improve some clinically important indicators and shows some signals of shifting from reactive care to proactive and preventive care. Further evaluation of Health TAPESTRY mechanisms will help us understand effective components and costs and consequences.

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